

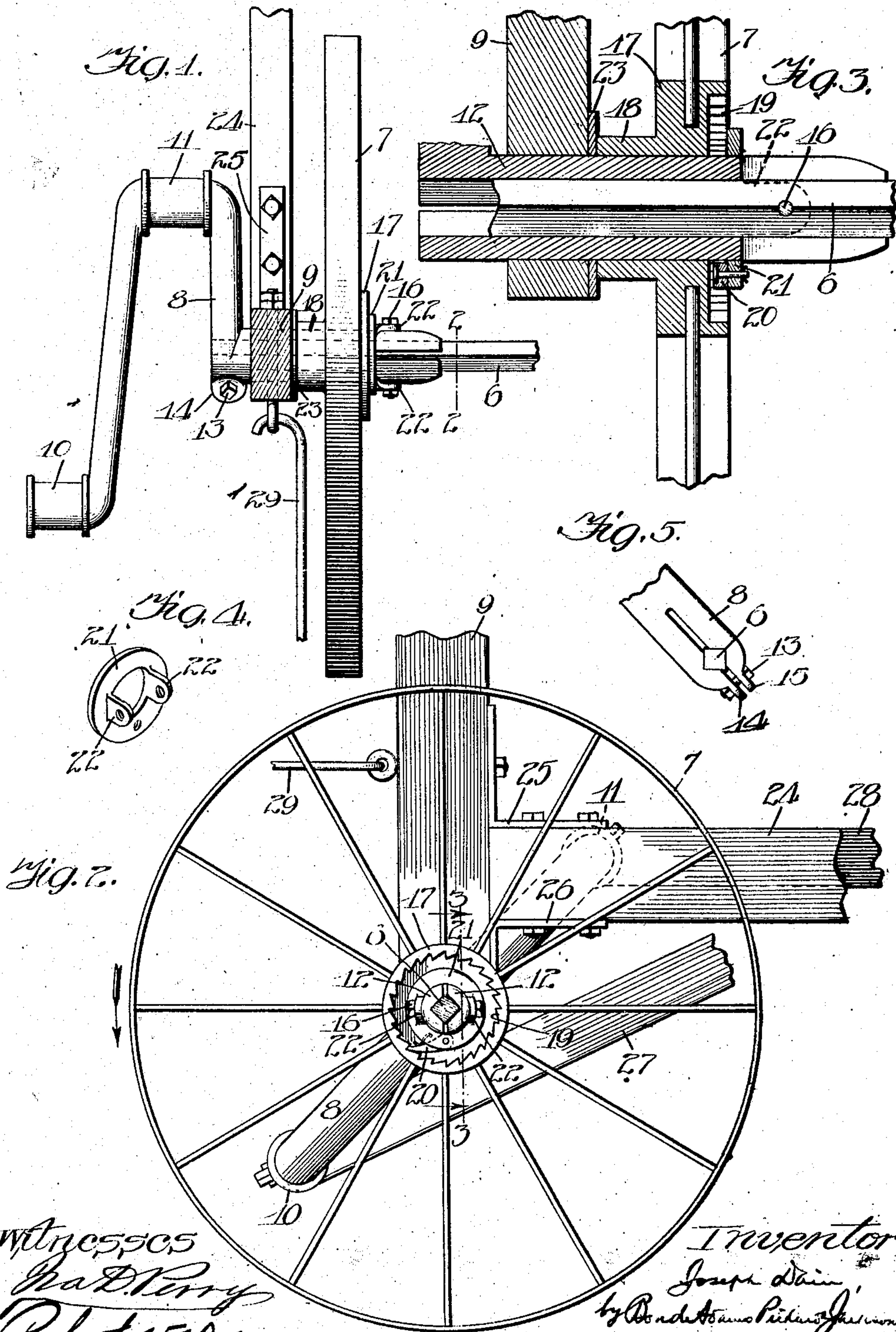
HAY LOADER.

APPLICATION FILED JAN. 19, 1907.

Patented Oct. 13, 1908.

2 SHEETS--SHEET 1

901,074.



Witnesses
Geo. D. Perry
Robert H. Weir

Inventor
Joseph Dain,
by Dea. H. A. and P. H. Johnson,
his Attys.

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J. DAIN.
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Fig. 6.

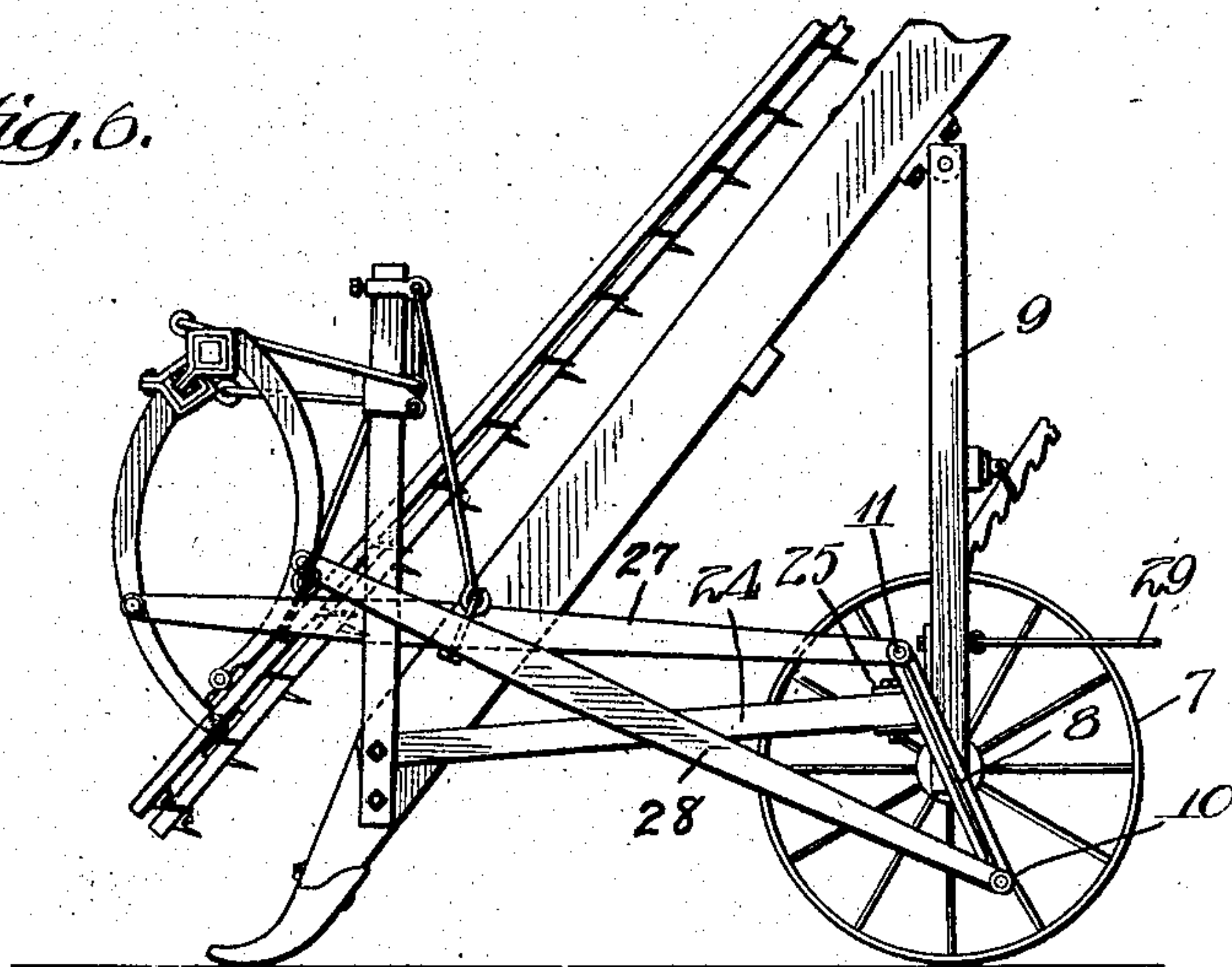


Fig. 8.

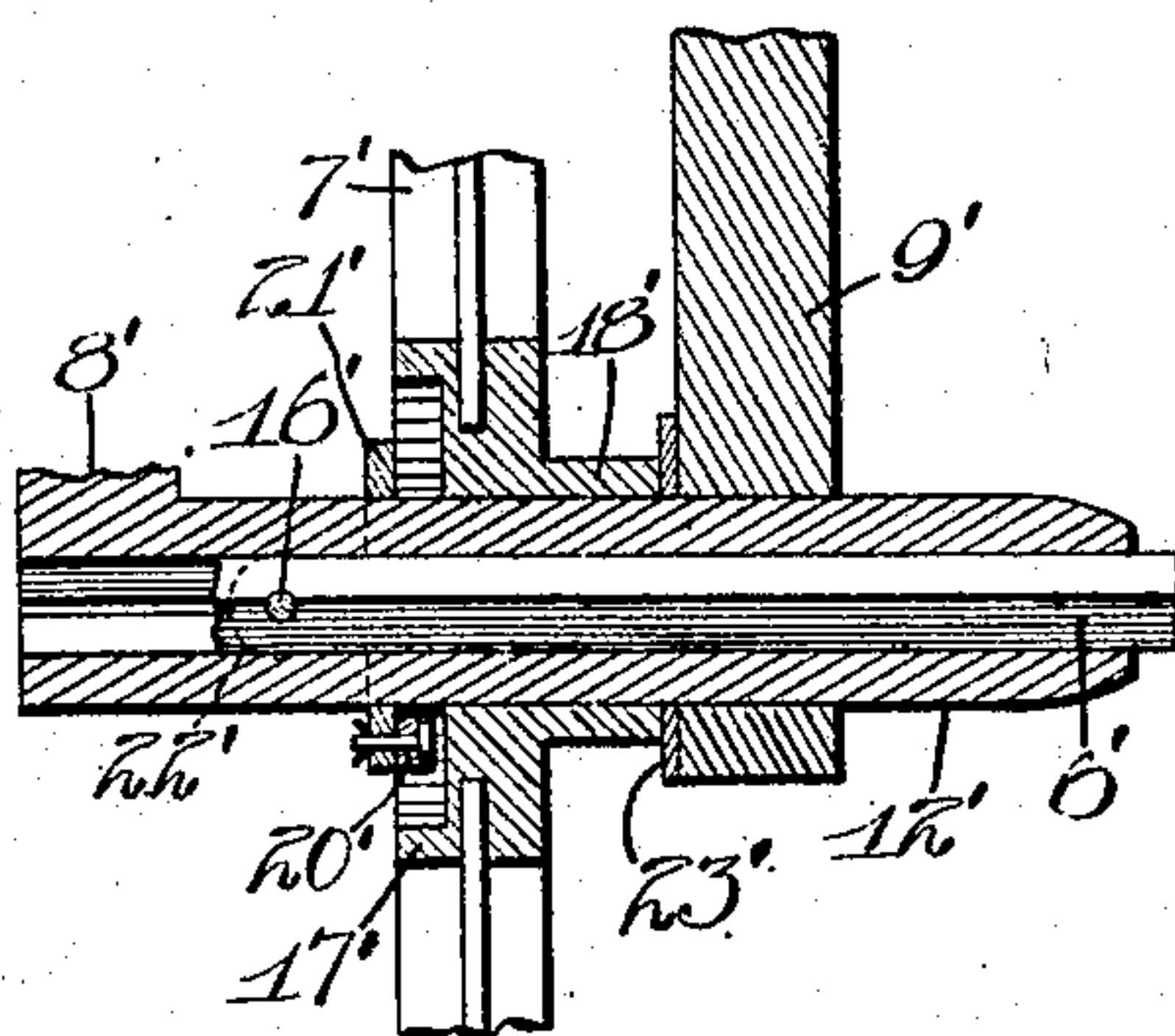
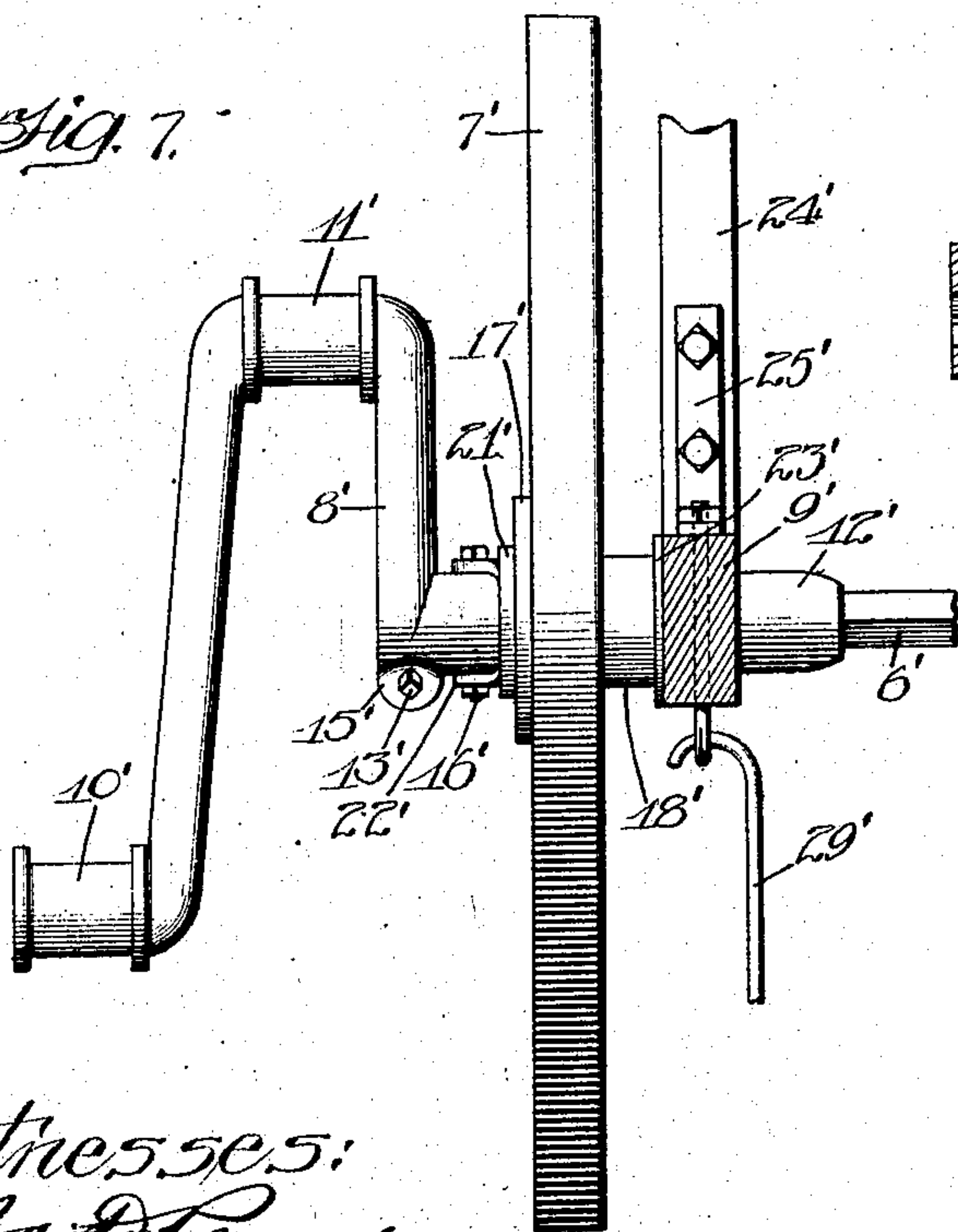


Fig. 7.



Witnesses:
Robert H. Weir

Inventor:
Joseph Dain,
by Bond Adams Piesland Jackson
his Attys.

UNITED STATES PATENT OFFICE.

JOSEPH DAIN, OF OTTUMWA, IOWA.

HAY-LOADER.

No. 901,074.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed January 19, 1907. Serial No. 353,102.

To all whom it may concern:

Be it known that I, JOSEPH DAIN, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Hay-Loaders, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to hay-loaders, and particularly to loaders of the type illustrated and described in my pending application, Serial Number 299,130, filed February 2, 1906, in which the raking devices are operated by means of pitmen connected with cranks, the axes of which are coincident, or substantially so, with the wheel axle. In such hay-loaders there is an elevator frame, over which the hay is elevated by means of reciprocating rakes which are alternately moved upward and downward by means of the pitmen above referred to,—the latter being suspended, or otherwise suitably mounted, so as to rock as well as reciprocate.

My present improvements, as above stated, are designed particularly for use in connection with loaders of the construction above referred to, but their use is not restricted to such loaders, and they may be applied to any other construction to which they are adapted.

In the accompanying drawings, which illustrate such parts of the loader as are necessary to a clear understanding of my improvements,—

Figure 1 is a plan view, partly in section, illustrating one of the wheels, the axle, one of the cranks, and the adjacent parts; Fig. 2 is a side view, partly in section, taken on line 2—2 of Fig. 1; Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 2; Fig. 4 is a detail in perspective, showing the collar which carries the pawl; Fig. 5 is a detail, showing the manner of securing the cranks upon the outer ends of the axle; Fig. 6 is a partial side elevation, illustrating my improved loader; and Figs. 7 and 8 are detail views similar to Figs. 1 and 3, showing a modified arrangement of some of the parts.

Referring to the drawings,—6 indicates the axle, which is squared, or otherwise made non-circular in cross-section, and is either tubular or solid, as preferred.

7 indicates one of the carrying wheels of the loader, two of which are provided, as usual.

8 indicates one of the cranks, of which there are two, one at each end of the axle 6.

9 indicates one of the uprights or standards which support the elevator frame.

It will be understood that the parts at each end of the axle are duplicates of those at the other end, so that a description of the parts at one end of the axle will apply equally well to those at the other end thereof.

As best shown in Figs. 1 and 3, the crank 8, which is double, as shown at 10—11 in Fig. 1, is provided with a sleeve 12 which fits upon the squared axle 6. Said sleeve is split at its outer and inner ends, as shown in Figs. 3 and 5, the intermediate portion thereof, however, being continuous. The object of so splitting the sleeve 12 is to provide for securing it tightly upon the axle 6, which is accomplished at the outer end of the axle by a bolt 13 which passes through lugs 14—15, as shown in Figs. 1 and 5, and at its inner end by a bolt 16 which passes through the split inner portion of the inner ends of the sleeve and also through the axle, as shown in Figs. 2 and 3. The crank sleeve is thus fixedly secured upon the axle, but may readily be removed when necessary. The sleeve 12 forms a bearing for the wheel 7, which is provided with a hub 17 having an extension 18 at its outer side, as shown in Fig. 3, so as to provide a more extended bearing surface and to hold the wheel in its proper position. The hub 17 is provided with a suitable ratchet 19, which is engaged by a pawl 20 carried by a collar 21, which is secured to the bolt 16, having lugs 22 for that purpose, as shown in Fig. 4 and by dotted lines in Fig. 3. If desired, the ratchet may be carried by the collar 21 and the pawl by the wheel, but I prefer the construction shown.

As is best shown in Fig. 3, the standard or upright 9 is mounted upon the sleeve 12 adjacent to the hub extension 18,—a bearing-plate or washer 23 being provided between them to take the wear. The hub extension 18 thus serves to keep the wheel and standard at the proper distance apart.

By the construction above described, the sleeve 12 serves as a bearing for the standard

9, which may readily be removed or replaced when necessary, and provides a very firm and efficient construction.

24 indicates one of the side bars by which the wheel frame is connected with the elevator frame,—said side bars being secured to the standards 9 by angle-braces 25—26, as shown in Figs. 1 and 2.

27—28 indicate the pitmen by which the rakes are operated from the cranks 10—11.

29 indicates one of the tongue-irons or draft-bars which are connected to the up-rights 9, as shown in Figs. 1 and 2.

In Figs. 7 and 8 I have illustrated a modified arrangement of some of the parts, the side-bars 24 and standards 9 being placed inside the wheels instead of outside, as shown in Fig. 1; the pawl 20 and hub extension 18 being also reversed, as shown in Figs. 7 and 8 in which the corresponding parts are indicated by corresponding prime numbers. The operation of the parts is substantially the same.

It will be understood that the axle 6, which may be either solid or tubular, and the cranks secured at the ends thereof, together compose a crank-shaft composed of only three pieces. It will also be observed that the wheels are mounted directly upon the sleeves or extensions of the cranks, so that the power is applied directly to the ranks. This provides a very efficient construction, since, for example, when all the power for driving the cranks is obtained from one wheel, as when turning a corner, the crank on the side developing the power encompasses the axle for such a distance that the axle is at no point subjected to any great strains in transmitting the power to the crank on the opposite side. Furthermore, the weight of the machine is carried on those portions of the cranks which extend through the wheels, so that the weight is distributed over quite a large portion of the axle. A further advantage of my preferred construction, illustrated principally in Figs. 1, 2 and 3, is that the draft is applied to the machine between the wheels and the cranks, since the draft-irons 29 are connected to the up-rights 9, as shown and described.

That which I claim as my invention, and desire to secure by Letters Patent, is,—

1. In a hay-loader, the combination of an axle, cranks at the ends of said axle, said cranks having sleeves fitted upon said axle, wheels mounted on said sleeves, a loader frame connected with said sleeves, raking devices, and pitmen connected with said cranks and with said raking devices.

2. In a hay-loader, the combination of an axle, sleeves fitted upon the ends of said axle and fixedly secured thereto, wheels mounted on said sleeves, a loader frame connected with said sleeves, raking devices, and driving

devices connected with said sleeves and with said raking devices for operating the same.

3. In a hay-loader, the combination of an axle, sleeves fitted upon and secured to the ends of said axle, wheels mounted on said sleeves, a loader frame connected with said sleeves, raking devices, and cranks carried by said sleeves and connected with said raking devices for operating the same.

4. In a hay-loader, the combination of an axle, sleeves fitted upon and secured to the ends of said axle, wheels mounted on said sleeves, a loader frame, standards supported by said sleeves and connected with the loader frame, raking devices, and cranks connected with said sleeves and with said raking devices.

5. In a hay-loader, the combination of an axle, cranks at the ends of said axle, said cranks having sleeves fitted upon the ends of said axle, wheels mounted on said sleeves, a loader-frame, standards and side-bars supported by said sleeves and connected with the loader-frame, raking devices, and pitmen connected with said cranks and with said raking devices.

6. In a hay-loader, the combination of an axle, cranks at the ends of said axle, said cranks having sleeves fitted upon the ends of said axle, standards and side-bars connected with said sleeves, a loader-frame with which said standards and side-bars are connected, raking devices, pitmen connected with said cranks for operating said raking devices, and carrying wheels.

7. In a hay-loader, the combination of an axle, cranks at the ends of said axle, said cranks having sleeves fitted upon the end portions of said axle, standards journaled upon said sleeves, a loader-frame connected with said standards, side-bars connected with said standards and with the lower portion of the loader-frame, raking devices, and pitmen connected with said cranks for actuating said raking devices.

8. In a hay-loader, the combination of an axle, cranks at the ends of said axle, said cranks having sleeves fitted upon the end portions of said axle, standards journaled upon said sleeves, a loader-frame connected with said standards, side-bars connected with said standards and with the lower portion of the loader-frame, raking devices, pitmen connected with said cranks for actuating said raking devices, and wheels mounted upon said sleeves.

9. A hay-loader having an axle, cranks having sleeves mounted upon the end portions of said axle, wheels mounted on said sleeves, standards mounted on said sleeves, a loader-frame supported by said standards, side-bars connected with said sleeves and with the loader-frame, raking devices, pitmen connected with said cranks for actuat-

ing said raking devices, and draft devices connected with said standards.

10. In a hay-loader, the combination of an axle, cranks at the ends of said axle, said
5 cranks having sleeves fitted upon said axle, a loader frame connected with said sleeves, raking devices, and means connecting said

cranks with said raking devices for operating the same.

JOSEPH DAIN.

Witnesses:

W. G. DUFFIELD,
C. A. LASSER.