(No Model.)

E. C. WILLEY.

SADDLE FOR DRAWING ROLLS OF SPINNING MACHINES, &c.

No. 359,654. Patented Mar. 22, 1887.

Fig. 1.

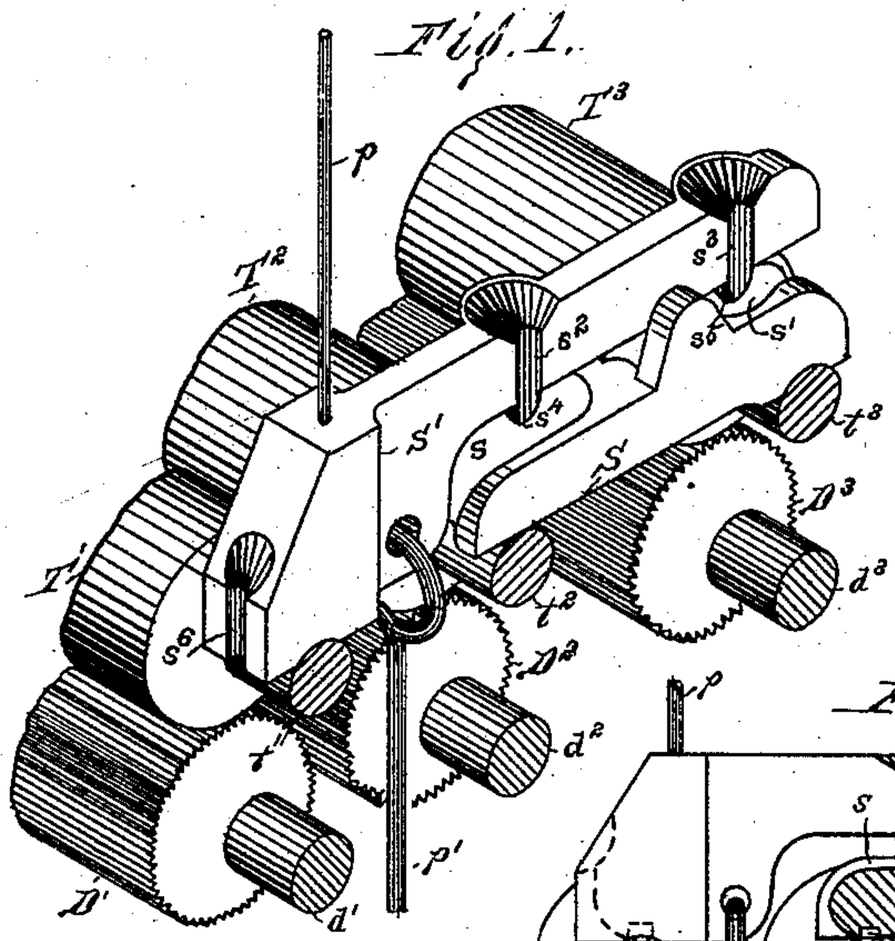


Fig. 3.

Fig. 4.

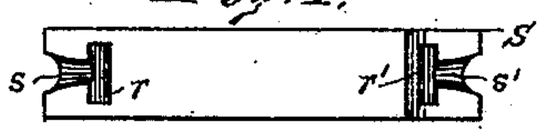


Fig. 2.

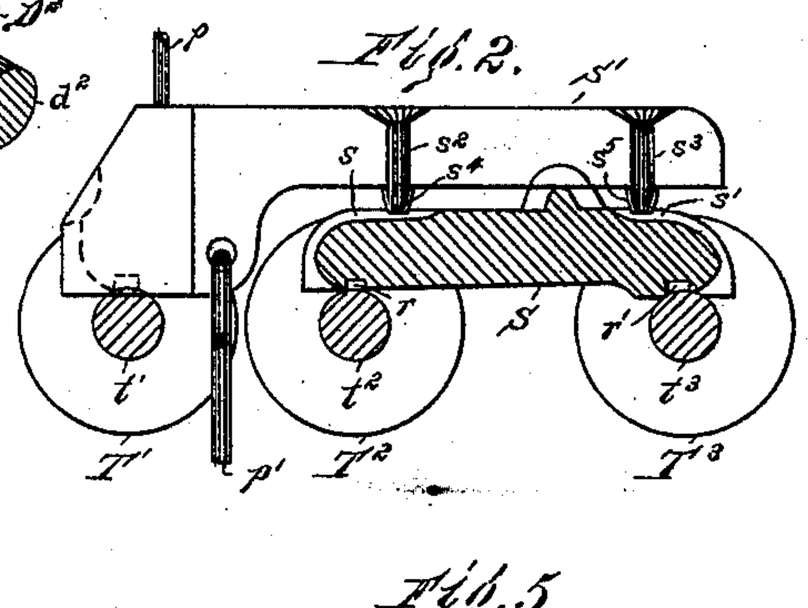


Fig. 7.

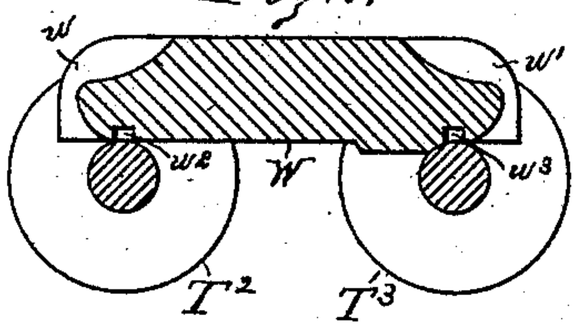


Fig. 8.

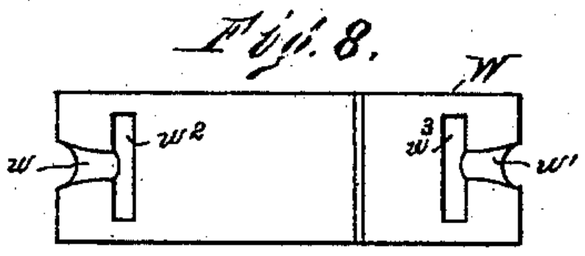


Fig. 5.

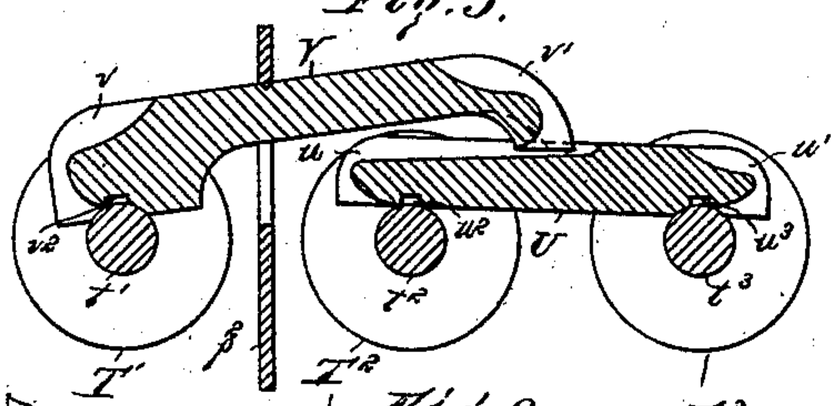
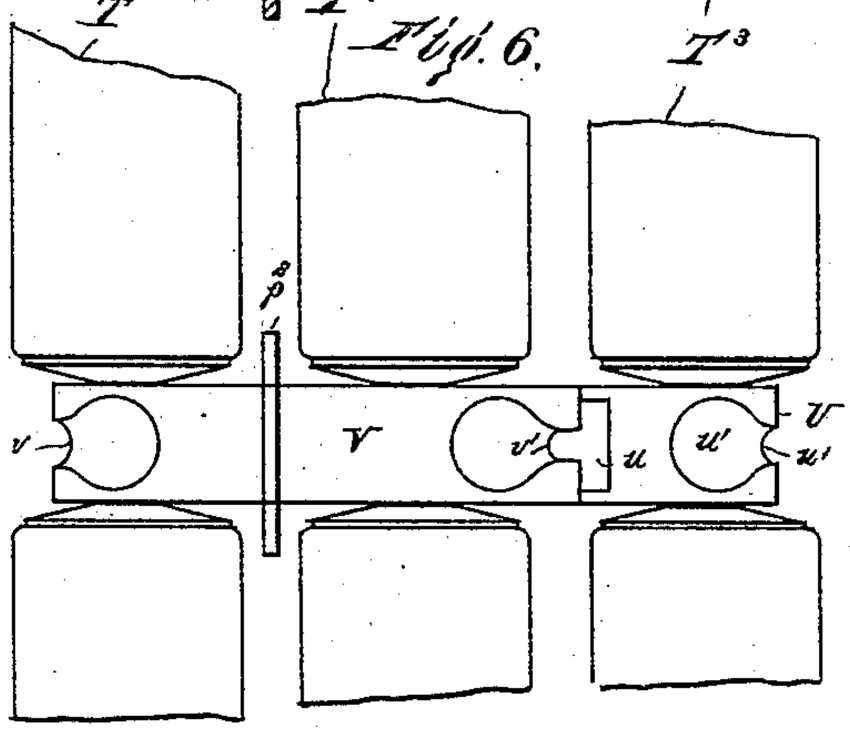


Fig. 6.



Witnesses—
Kirkley Hyde.
Gertrude M. Day.

Inventor—
Eben C. Willey,
By Albert M. Moore,
His Attorney.

UNITED STATES PATENT OFFICE.

EBEN C. WILLEY, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF TO GILBERT P. WHITMAN, OF SAME PLACE.

SADDLE FOR DRAWING-ROLLS OF SPINNING-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 359,654, dated March 22, 1887.

Application filed September 11, 1886. Serial No. 213,285. (No model.)

To all whom it may concern:

Be it known that I, EBEN C. WILLEY, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented a certain new and useful Improvement in Saddles for Drawing-Rolls of Spinning and Twisting Machines, of which the following is a specification.

My invention relates to saddles for drawing-rolls of spinning and twisting machines; and it consists in the devices and combinations hereinafter described and claimed, the object of which is to facilitate the lubrication of the bearings of said saddles.

In the accompanying drawings, Figure 1 is an isometric view of a set of drawing-rolls and saddles as used in a spinning-mule, the arbors of said rolls being in section; Fig. 2, a section of the top rolls shown in Fig. 1, and of the lower saddle, and a side elevation of the upper saddle, said section being a longitudinal vertical section through the middle of the lower saddle. Figs. 3 and 4 are respectively plans of the top and bottom of the lower saddle shown in Figs. 1 and 2; Fig. 5, a vertical longitudinal central section of the saddles of the drawing-rolls of a spinning-frame and a transverse section of the top rolls between the bosses of the same; Fig. 6, a plan of the middle portion of the top rolls and saddles shown in Fig. 5; Fig. 7, a central longitudinal sectional elevation of a saddle and drawing-rolls as used in a fly-frame; Fig. 8, a plan of the bottom of the saddle shown in Fig. 7.

The lower drawing-rolls, D′ D² D³, are commonly steel rolls fluted longitudinally and having necks or reduced portions d' d^2 d^3, which turn in bearing-notches in suitable roller-stands, (not shown,) as is well known, and the top rolls, T′ T² T³, are commonly covered with leather and rest upon the lower rolls, there being two bosses or top rolls on a single arbor, t' t^2 t^3, slightly separated from each other, the arbors between said bosses or top rolls serving as the journals of the top rolls. On the last-named journals rest suitable saddles. In a mule there are three pairs of rolls, as shown in Figs. 1 and 2. On the journals of the middle and back roll rests the lower saddle, S, which is substantially of the shape commonly used, except that it is provided at each end with a groove, s s', which extends from the top of the saddle over the end of the same and on the under side of the same to its bearing on the journal or arbor t^2 t^3. The grooves s s' are inclined downward all the way from their upper ends to the bearing-surfaces of the lower saddle, so that a drop of oil poured into either of said grooves on the top of the saddle will be conducted to the journal on which the saddle rests, thus avoiding the necessity of removing the saddles to lubricate said journals.

The upper saddle, S′, (shown in Figs. 1 and 2,) is of substantially the usual shape, except that it is provided with oil-grooves, which lead from the top thereof to the bottom thereof, immediately above the grooves s s' in the lower saddle, these grooves in the upper saddle being marked s^2 s^3; and except, also, that the upper saddle is provided with projections s^4 s^5, which reach down from its lower edge and contain continuations of the grooves s^2 s^3, and prevent oil poured into the top of said grooves from spreading out over the lower edge of said upper saddle; and except, also, a third oil-groove, s^6, which reaches from the inclined upper surface of the front end of said saddle S′ down to the bearing-surface of the arbor t' of the front top roll, T′, said last named oil-groove constantly descending from its highest part to said bearing-surface.

All of the oil-grooves above named are formed partly in the ends of their saddles, except the grooves s^2 s^3, which run nearly vertically on the side of the upper saddle and discharge into the oil-grooves of the lower saddle, and all of said grooves are enlarged at their upper ends, to facilitate the reception of oil. The oil-grooves formed partly in the ends of the saddle preferably terminate at their lower ends in a transverse groove, r, as shown in Figs. 2 and 4, adapted to contain an accumulation of oil at the bearing-surfaces.

The upper saddle, S′, is provided near its front end with a vertical pin, p, which serves to retain on the saddle a roll (not shown) used to catch lint, and is also provided with a hook, p', a part only of which is shown, which serves to support a weight (not shown) in the usual

manner, to increase the pressure of the top rolls upon the fluted rolls.

The saddles shown in Figs. 5 and 6 are of the common form used in ring-spinning frames and differ from those in common use only in having oil-conducting grooves, substantially like those above described as belonging to the saddle S.

In Figs. 5 and 6 the lower saddle, U, rests upon the journals of the middle and rear top rolls, T^2 T^3, (these top rolls being substantially like those shown in Figs. 1 and 2,) and the upper saddle, V, rests at its front end upon the front top roll, T', while its rear end rests upon the lower saddle, U, pressure being applied to the top rolls by a weight suspended from a sheet-metal hook or link, p^2, a part only of which is shown. The lower saddle, U, is provided at each end with oil-grooves *u u'*, which are enlarged at the top and run down over the ends of the saddles to the bearing-surfaces, and terminate in transverse grooves u^2 u^3, which serve the same purpose as the grooves *r*, shown in Figs. 2 and 4, and above described. The upper saddle, V, is also provided with oil-grooves, which lead from its upper surface at *v v'* to its bearing-surfaces, the groove *v* terminating in a transverse groove, v^2, at the journal of the front top roll, T', and the groove *v'* discharging into the groove *u*, which conducts the oil to the journal of the middle top roll, T^2.

In Figs. 7 and 8 a saddle is shown of the form commonly used in fly-frames. This saddle, W, is provided with oil-grooves *w w'*, which lead from its upper surface over its ends to the journals of the drawing-rolls T^2 T^3 and terminating in transverse grooves w^2 w^3, which hold an accumulation of oil on said journals. The last-named oil-grooves constantly descend from their highest parts to said last-named transverse grooves.

The oil-grooves above described are less liable to become clogged than oil-holes, and are very easily cleaned and conduct the oil with facility and certainty to the journals of the drawing-rolls.

I am aware that saddles have been made with recesses or chambers in their upper surfaces to contain wads of felt or other suitable material saturated with oil or other lubricating compound, which passes through small holes leading from the bottoms of said recesses and discharging upon ungrooved surfaces or ends of such saddles, the oil or lubricating compound not, however, being directed by grooves or channels from the lower ends of said holes to the bearing-surfaces of said saddles. Such a construction I do not claim.

I am not aware that an open groove situated partly in the top of a saddle and leading from the top of the same to the bearing-surface of the same has ever been used.

I claim as my invention--

1. A saddle for drawing-rolls, provided with one or more open grooves extending from the upper surface thereof to the bearing-surface of said saddle, as and for the purpose specified.

2. A saddle for drawing-rolls, provided with oil-grooves extending from the upper surface thereof and over the ends thereof to the bearing surfaces of said saddle, as and for the purpose specified.

3. A saddle for drawing-rolls, provided with oil-grooves arranged in the top ends and bottom of said saddle and constantly descending from the highest parts of said grooves to the bearing-surfaces of said saddle, as and for the purpose specified.

4. A saddle for drawing-rolls, having an oil-passage leading from the upper surface thereof to the bearing-surface of said saddle and terminating at said bearing-surface in a transverse groove or lateral enlargement to receive and retain oil, as and for the purpose specified.

5. A saddle for drawing-rolls, provided with oil-grooves extending from the top of said saddle to the bearing-surfaces of said saddle and terminating at said bearing-surfaces in transverse grooves or lateral enlargements at said bearing-surfaces, as and for the purpose specified.

6. The combination of a saddle provided with oil-grooves arranged in the top ends and under surface of said saddle and terminating at the bearing-surfaces of said saddle, in combination with another saddle adapted to be supported partly by said first-named saddle and provided with one or more oil-grooves extending from the top to the bottom thereof and adapted to discharge oil placed in said last-named grooves into one or more of said oil-grooves in said first-named saddle, as and for the purpose specified.

EBEN C. WILLEY.

Witnesses:
JOHN H. ANDREWS,
WALLACE B. CLEMENT.