

No. 689,609.

Patented Dec. 24, 1901.

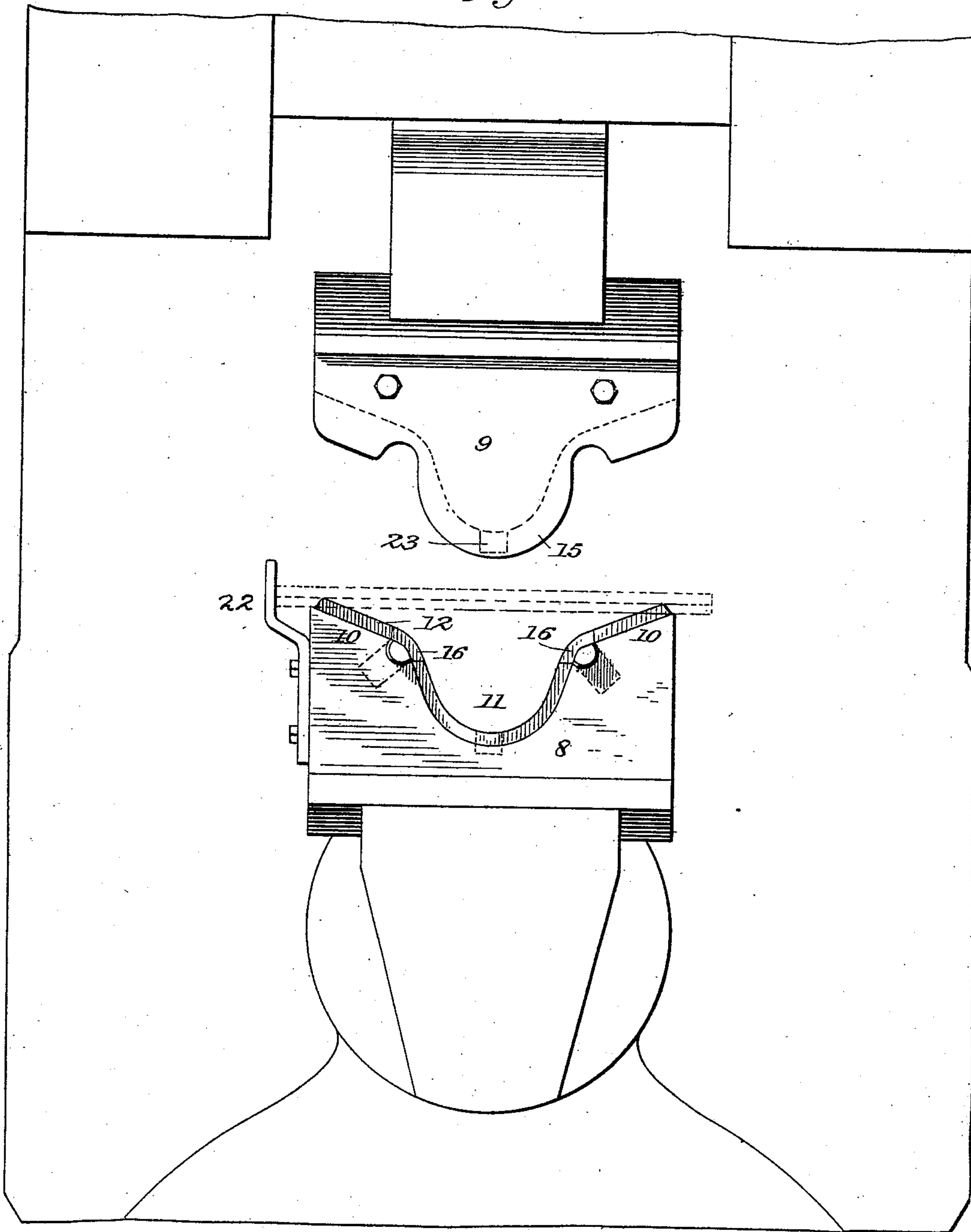
E. EINFELDT.
BENDING MACHINE.

(Application filed Aug. 31, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses
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2 Sheets—Sheet 2.

Fig. 2.

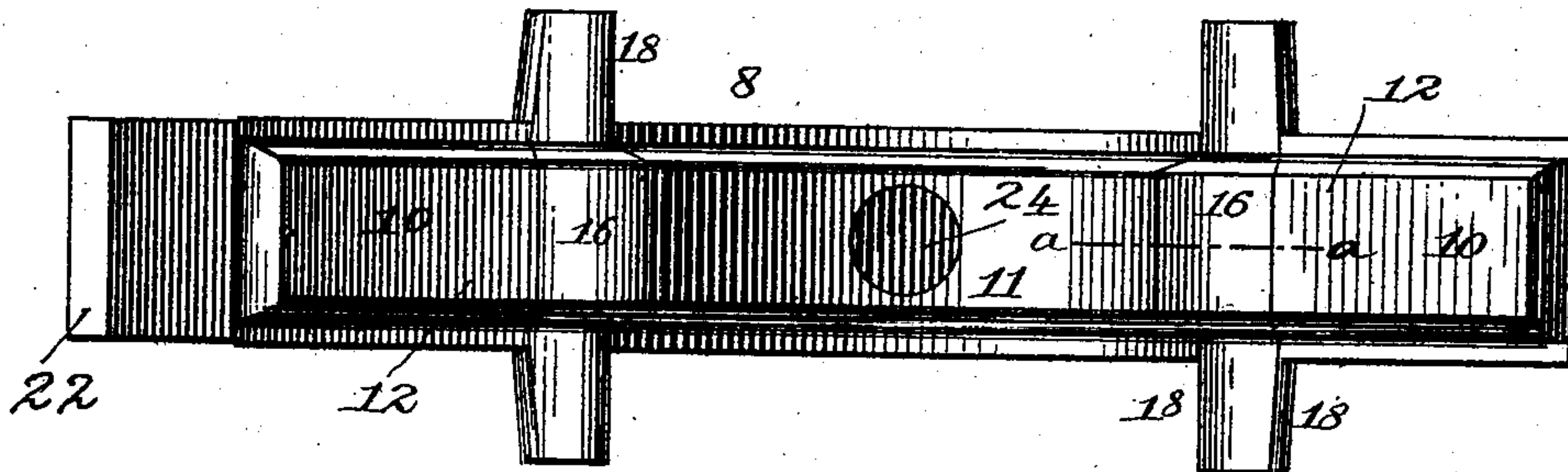


Fig. 3.

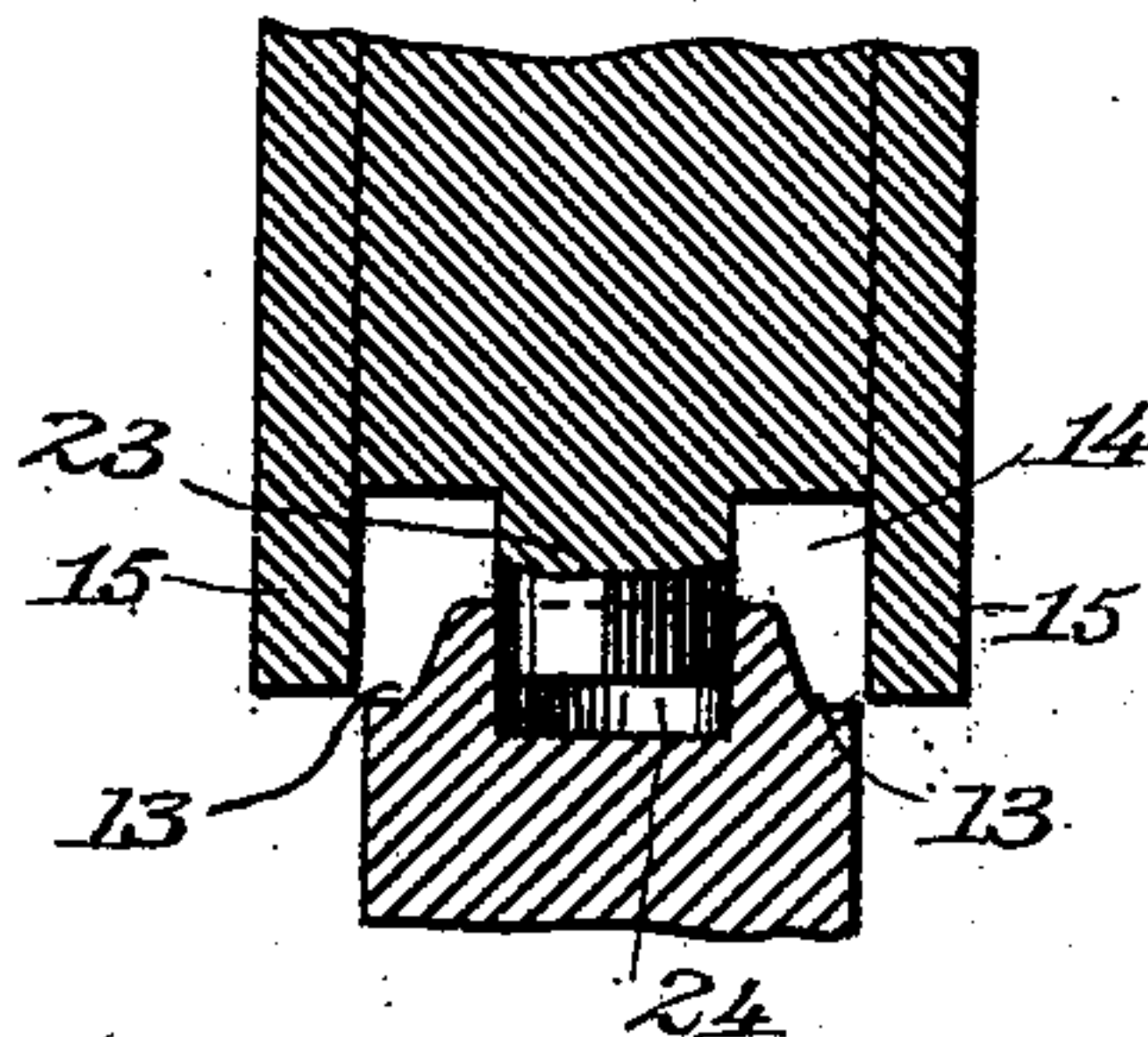


Fig. 4.

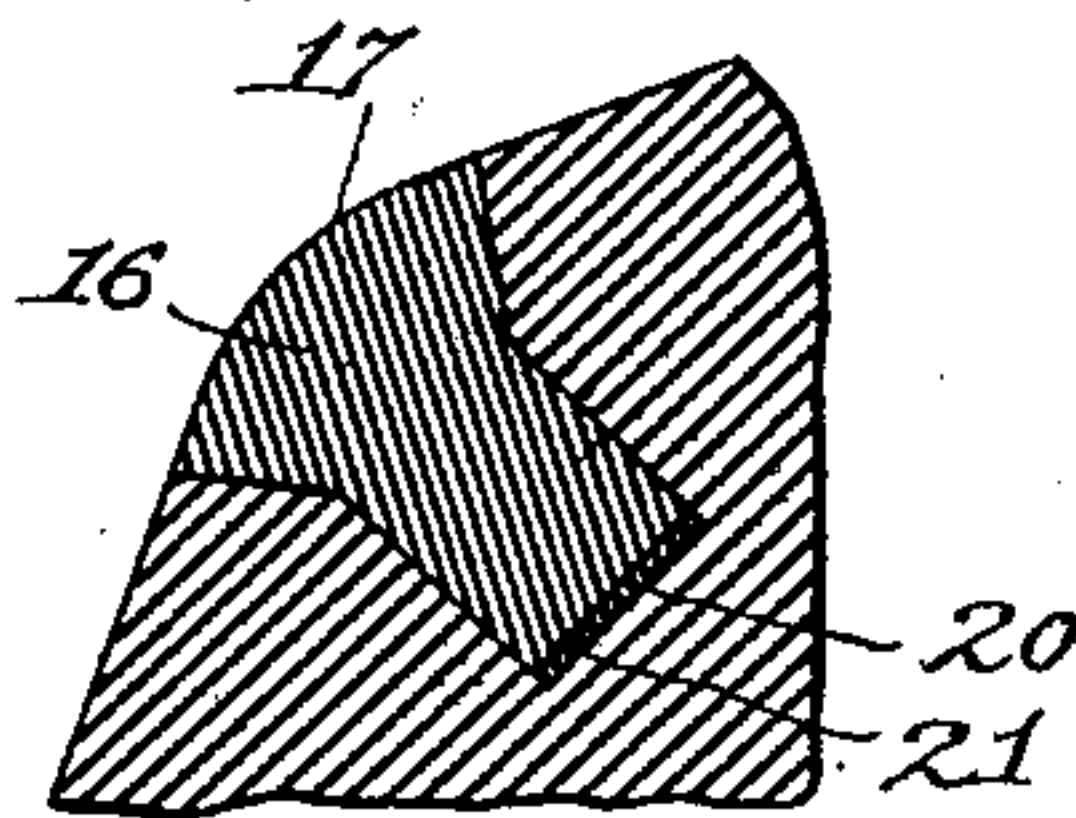


Fig. 5.

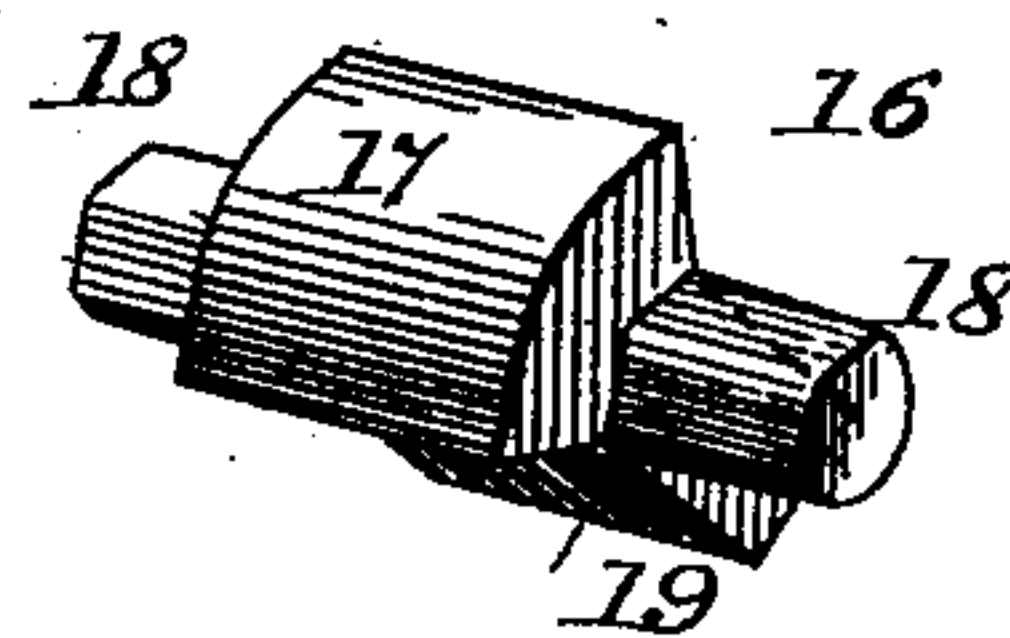


Fig. 6.

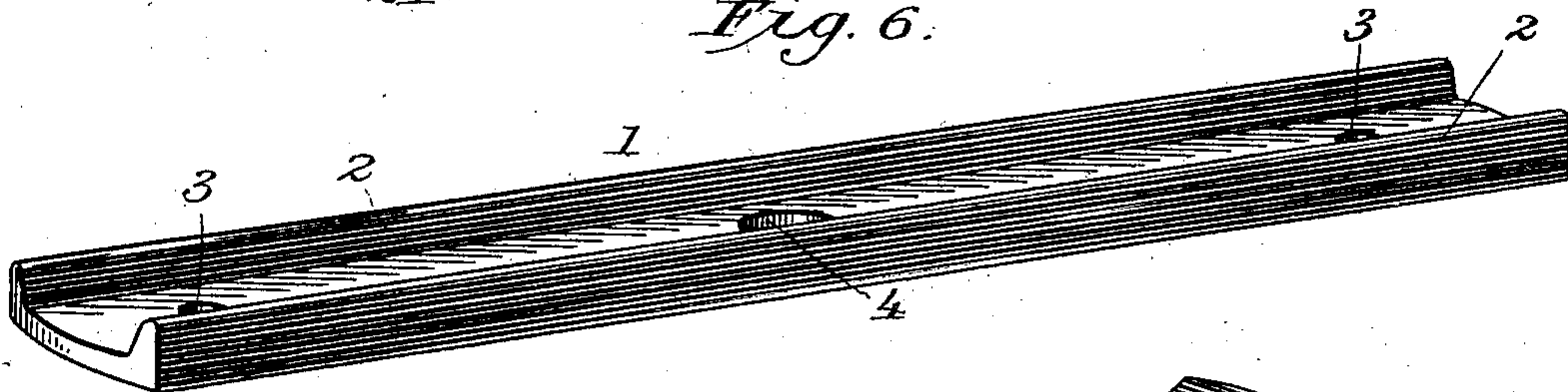
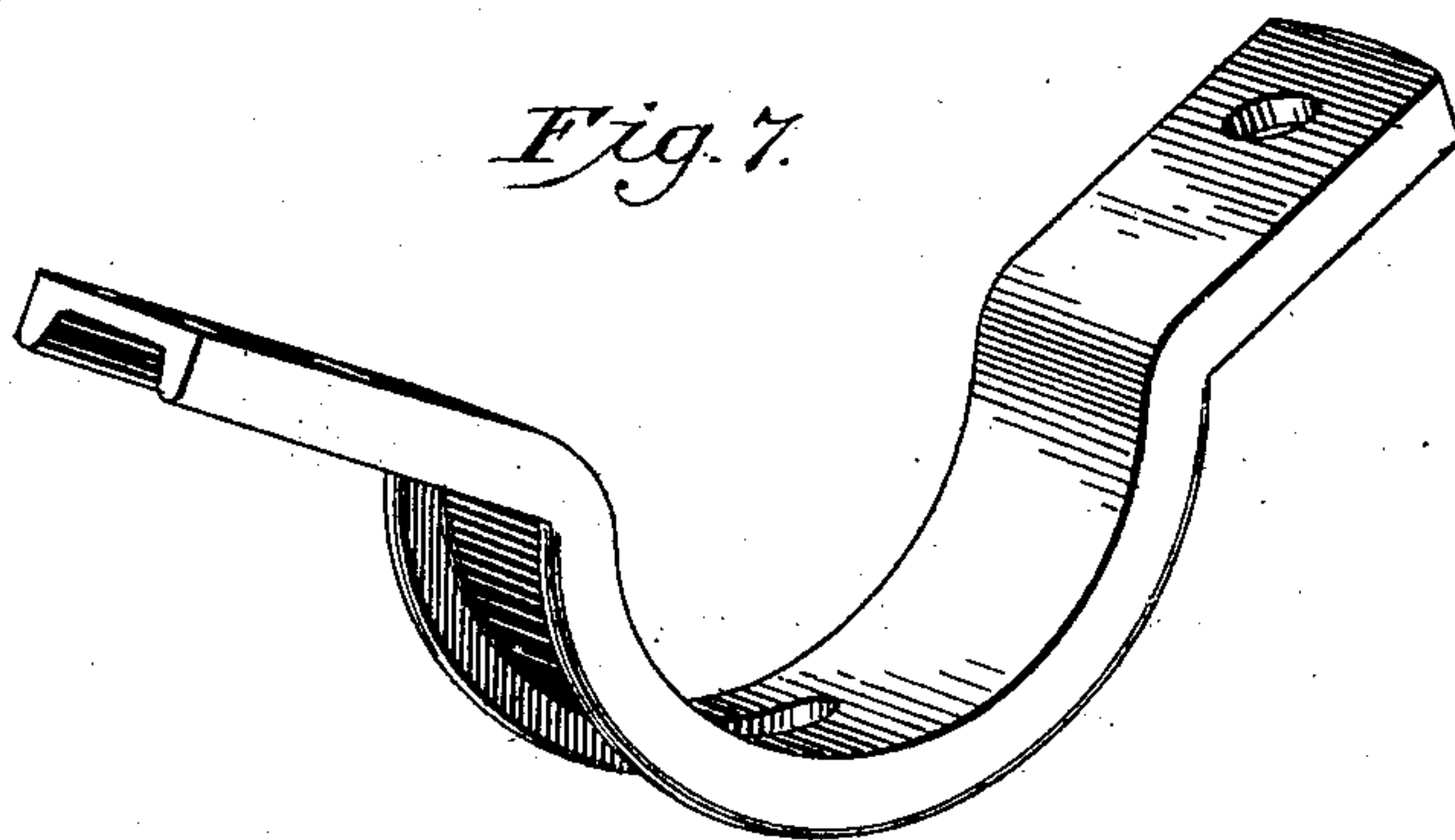


Fig. 7.



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UNITED STATES PATENT OFFICE.

EMIL EINFELDT, OF DAVENPORT, IOWA, ASSIGNOR TO BETTENDORF METAL
WHEEL COMPANY, A CORPORATION OF ILLINOIS.

BENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 689,609, dated December 24, 1901.

Application filed August 31, 1901. Serial No. 74,037. (No model.)

To all whom it may concern:

Be it known that I, EMIL EINFELDT, of Davenport, county of Scott, and State of Iowa, have invented a new and useful Improvement in Bending-Machines, of which the following is a specification.

This invention relates to a machine for bending flanged yoke-plates which are employed as a connecting means between the spokes and the two parts of the rim of metal wheels, the yoke-plate being of U form, connected at its bend to the spoke and at its ends to the two parts of the rim.

The invention consists of cooperating dies of improved form and construction, which are adapted to act on the flanged metal blank and give the same the desired form.

The invention consists also in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of the dies, the same being separated with the blank in position ready to be acted on. Fig. 2 is a top plan view of the lower fixed die. Fig. 3 is a vertical transverse section through the two dies, showing them closed together with the bent blank between them in section. Fig. 4 is a longitudinal section on the line *a a* of Fig. 2. Fig. 5 is a perspective view of a detail. Fig. 6 is a perspective view of one of the flanged blanks. Fig. 7 is a perspective view of the same after being bent in the form of a yoke.

Referring to the drawings, the machine is adapted to act on a blank 1 of the form represented in Fig. 6 with angular flanges 2 on its edges, end holes 3, and a central hole 4, and it operates to bend the blank into the form of a yoke-plate, as represented in Fig. 7, with its ends inclined in opposite directions and adapted to be riveted by the end holes to the two rim-sections and its central portion curved inward and adapted to have the spokes secured in the central hole therein.

The machine in its preferred form embodies a lower fixed die 8 and an upper vertically-movable die 9, adapted to cooperate with each other on the blank between them and bend the same in the desired form. The lower die is of the general form of the finished yoke-plate, being provided with oppositely-inclined

ends 10 and an intermediate downwardly-curved portion 11, joining the two end portions. The central surface of the die is elevated longitudinally, as at 12, Fig. 3, forming on the edges of the die two longitudinal grooves 13, in which the flanges on the blank are adapted to extend, the elevated surface giving support to the flat body portion of the blank. The upper vertically-movable die is of the same general form from end to end, but is of reverse form in cross-section, being provided with a central longitudinal depression or groove 14, adapted to receive the elevated surface of the lower die and to bear on the flat body portion of the blank and being further provided with depending longitudinal flanges 15, adapted to enter the side grooves in the lower die and extend at the outer sides of the flanges on the blank when the two dies are brought together. The relative sizes of the two dies is such, of course, that when brought together in the act of bending the blank spaces sufficient for the flanges on the blank will be left between the inner sides of the depending flanges 15 on the upper die and the outer sides of the elevated surface 12 on the lower die, so that the flanged blank will be inclosed and given support at every point between the two dies.

By reason of the fact that the greatest wear on the lower die will be at the points where the curved portion joins the inclined ends, the blank at these points being given an angular bend, I propose to provide for the compensation for this wear, which I accomplish by constructing the lower die at these points in the form of movable sections or blocks 16, Figs. 3, 4, and 5. These blocks are provided with an elevated surface 17, forming a continuation of the elevated surface of the die, and with lateral projections 18, forming continuations of the base of the grooves 13, which support the lower edges of the flanges on the blank, and the blocks are set movably in place in the lower die by means of an extension 19 on the block entering a socket 20 in the die. When the surfaces of the blocks become worn from continued usage, they may be set up flush with the adjacent surfaces of the die by the insertion of a filling 21 in the base of the socket, the projections 18 on the blocks serv-

ing as a convenient means for removing them to admit of the insertion of the filling.

In the operation of the machine the upper die is raised and a blank placed in position 5 on the lower die, one end bearing against a vertical gage-finger 22, rising from the end of the lower die, so that the central hole 4 in the blank will be vertically beneath a pin 23, depending from the center of the upper die. 10 On the descent of the upper die the pin 23 will enter the hole in the blank and maintain it in position against endwise movement, the continued movement of the die bending the middle of the blank downwardly into the 15 downwardly-curved portion on the lower die, the flat portion of the blank and its flanges being pressed firmly between the two dies and given the desired form. The lower die is recessed, as at 24, to admit the pin on the 20 upper die, so that it may be brought closely down on the blank.

Having thus described my invention, what I claim is—

1. In a bending-machine the combination 25 with a die having an elevated longitudinal central surface and longitudinal side grooves, of a coöperating die having a depressed longitudinal central surface and longitudinal side flanges to enter the grooves in the oppos- 30 ing die.

2. In a bending-machine the combination with a die provided with active surfaces ex- tending at an angle to each other, of an ad- justable section at the junction of said sur- 35 faces forming a continuation of the same.

3. In a bending-machine the combination

with a die having end surfaces and an inter- mediate surface joining the same at an angle, of adjustable sections at the junction of said surfaces, said adjustable sections forming 40 continuations of the active surfaces of the die.

4. In a bending-machine the combination with a die having an elevated central surface and formed with a socket, of a movable sec- tion provided with an elevated wearing-sur- 45 face forming a continuation of that on the die, and formed with an extension adapted to enter the socket, and a filling-piece in the bottom of the socket on which the extension rests. 50

5. In a bending-machine the combination with a die having active surfaces joining each other at an angle, of a movable section at the junction of said surfaces forming a continu- ation of the same, and a lateral projection 55 on said section.

6. In a bending-machine the combination with a die provided with active surfaces ex- tending longitudinally at an angle to each other, of a movable wearing-section at the 60 junction of said surfaces, said section having its active surface in two planes extending at an angle to each other, and forming respec- tively continuations of the two active sur- 65 faces of the die.

In testimony whereof I hereunto set my hand, this 17th day of June, 1901, in the pres- ence of two attesting witnesses.

EMIL EINFELDT.

Witnesses:

NATH FRENCH,
MAY L. DODGE.