

(No Model.)

J. S. WORTH.

PORTABLE SPEED REDUCING GEAR.

No. 325,220.

Patented Aug. 25, 1885.

FIG. 1.

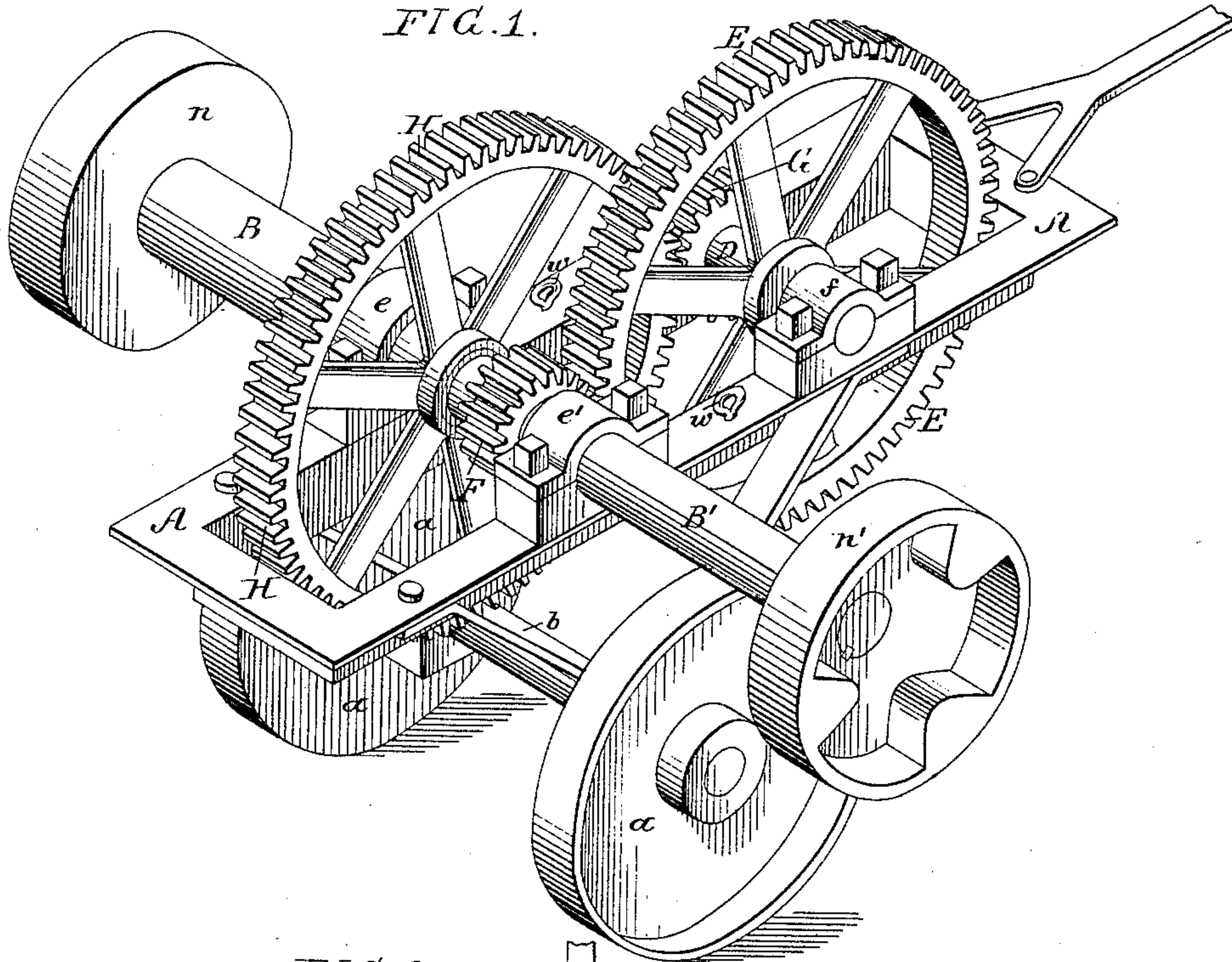
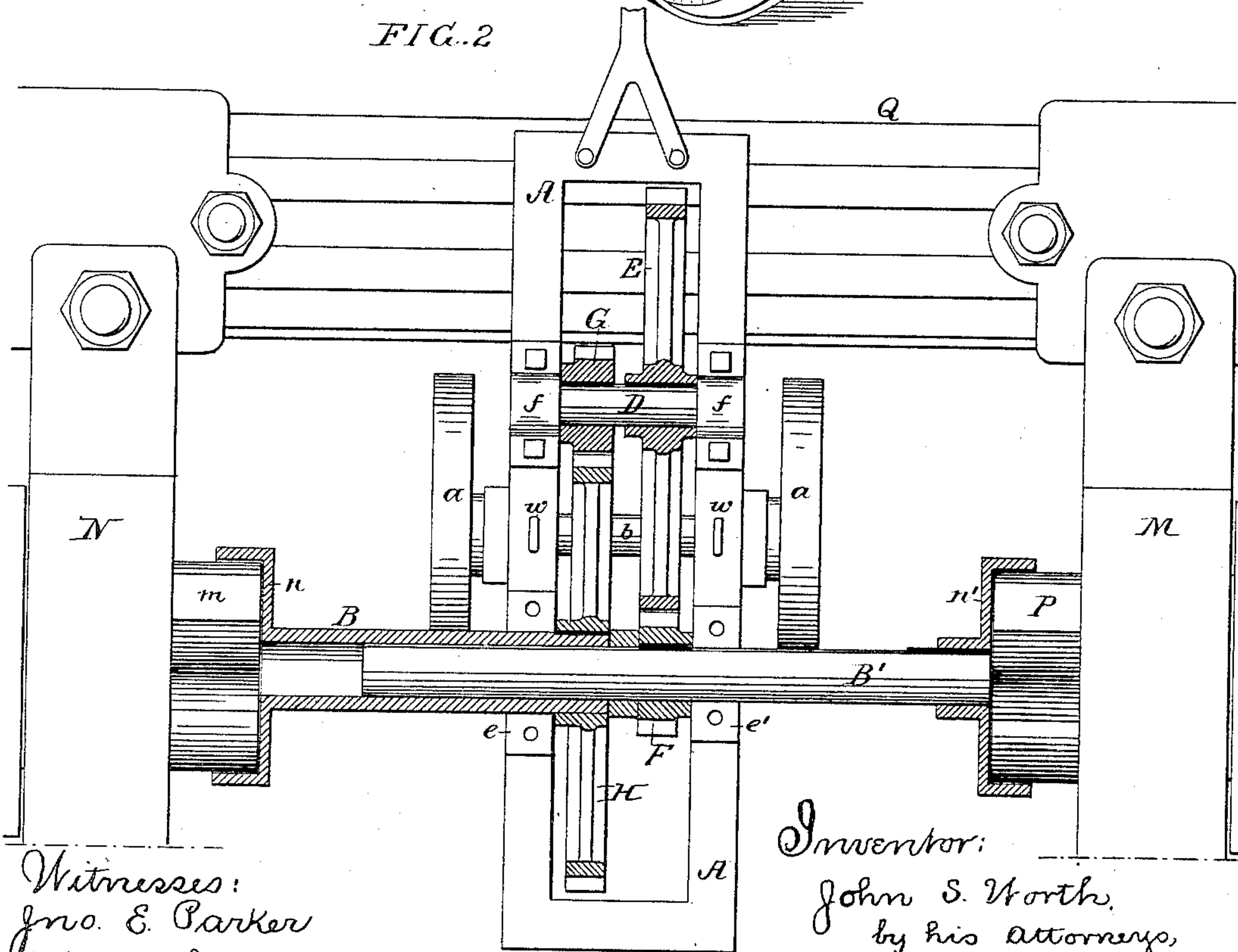


FIG. 2.



Witnesses:  
Jno. E. Parker  
William F. Davis

Inventor:  
John S. Worth,  
by his attorneys,  
Howe & Sons



# UNITED STATES PATENT OFFICE,

JOHN SHARPLESS WORTH, OF COATESVILLE, PENNSYLVANIA, ASSIGNOR  
OF ONE-HALF TO WILLIAM P. WORTH, OF SAME PLACE.

## PORTABLE SPEED-REDUCING GEAR.

SPECIFICATION forming part of Letters Patent No. 325,220, dated August 25, 1885.

Application filed December 26, 1884. Renewed July 23, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN SHARPLESS WORTH, a citizen of the United States, and a resident of Coatesville, Chester county, Pennsylvania, have invented certain Improvements in Portable Speed-Reducing Gear, of which the following is a specification.

My invention consists of the portable reducing-gear, described and claimed hereinafter, for ready application to the engine-shaft and roll of a rolling-mill when the said roll has to be re-turned or trued without removing it from the housings, and for this purpose has to be turned at a much less speed than that at which the engine-shaft revolves.

In the accompanying drawings, Figure 1 is a perspective view of the portable gearing; and Fig. 2, a plan view, partly in section.

In re-turning or truing the rolls of rolling-mills in their housings it has been usual to remove the coupling which connects the end of the engine-shaft to the neck of the roll and interpose between them gearing by which the roll is caused to be turned by the engine at the reduced speed necessary to permit the turning-tool to have the proper cutting effect. Much time was consumed in applying and removing this reducing-gear, and this I obviate in the manner which I will proceed to describe. The reducing-gear is carried by a truck, A, provided with wheels *a a*, the axle *b*, which is adapted to bearings in hangers, secured to the under side of the frame of the truck. A tubular shaft, B, is adapted to a bearing, *e*, on the truck, and a shaft, B', to a bearing, *e'*, the latter shaft extending into the former. To a shaft, D, adapted to bearings *f f* on the truck, is secured a cog-wheel, E, into which gears a pinion, F, on the shaft B', a pinion, G, on the said shaft D gearing into a cog-wheel, H, on the tubular shaft B.

Referring to Fig. 2, M is one of the housings for the engine-shaft P; N, part of one of the housings of the rolls; Q, part of one of the usual beds which support the housings, the end of the engine-shaft P and the neck *m* of the roll being prepared for the usual coupling, which is removed when the portable reducing-gear has to be applied, the latter operation being effected by simply adjusting the truck to the position shown in Fig. 2, and applying a coupling, *n*, on the tubular shaft

to the neck of the roll, and then sliding the shaft B' outward, so that its coupling attachment *n'* will fit over the end of the engine-shaft. It will be understood that the pinion F has a key or feather fitting into a longitudinal groove in the shaft B'.

Instead of one shaft being arranged to slide into the other, the coupling attachments may be adjustable on the shafts.

The bearing of the truck on the bed Q will serve to prevent the truck from turning with the shafts, and in order to facilitate the adjustment or removal of the truck the same is provided with eyes *w* for attachment to the chains of a crane or other hoisting apparatus.

When the engine is in motion, the roll will be rotated at the slow speed required through the medium of the pinion F, wheel E, pinion G, and wheel H.

Reducing-gear composed of different systems of wheels will readily suggest themselves to expert mechanics.

After the roll has been turned the truck may be readily withdrawn and the usual coupling for connecting the engine-shaft to the neck of the roll replaced.

A simple frame without wheels may be used in place of the truck if desired, but the latter is preferred for convenience of handling.

I claim as my invention—

1. The combination of a frame, two shafts, B B', carried thereby, and gearing, substantially as described, by which the shaft B may be driven from the shaft B' at a less speed than the latter, as set forth.

2. The combination of two shafts, B B', and gearing, whereby the shaft B is driven from the shaft B' at a less speed than the latter, with a wheeled truck carrying said shafts and gearing, as set forth.

3. The combination of the frame A, the tubular shaft B, the shaft B', sliding in said tubular shaft, and gearing whereby the shaft B is driven from the shaft B', but at a less speed, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN SHARPLESS WORTH.

Witnesses:

J. L. CHRISTY,  
JOHN W. GRAY.